

Work Order ID 60744

Thursday, July 22, 2010 8:17:59 AM



Page 1

Item ID: D205-634-041

Accept



Setup Start



Revision ID:

Stop



Item Name: Replacement Skidtube

Start Date: 7/21/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 8/6/2010 Req'd Qty: 1.00

Customer:

Reference:

Approvals:

Process Plan:

Date: 10-7-24

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
D2580	Rev D

100

0.00



DOCUMENT CONTROL

DC

Memo

0.00

Document Control

Photocopy D205-634 bluefile & type labels per PPP D205-634-041 CHG002

8/10/12

CZ 10/8/12

110

0.00



BENDING MACHINE - SKIDTUBES

CNC Bend 1

Memo

0.00

CNC Delta 100 Bender

1-Bend as per program D2580.C on CNC Bender and Folio 16

2-Cut tubes as per Dwg. D2580

3- scribe batch# in aft end of tube

14

MB 10-07-28

PTO

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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Run Start

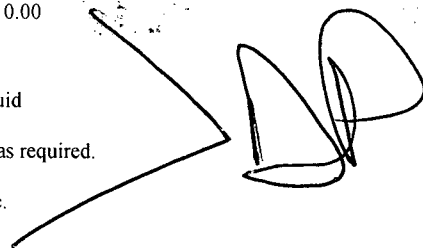


QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120 Skidtubes	Memo 1- Deburr ends 2- C'sink holes as per dwg without cutting fluid 3- Prepare tube for welding, remove alodine as required. 4- Scribe batch number insied aft end of tube.	0.00 0.00							
130 QC	QC5- Inspect part completeness to step on W/O Memo Quality Control	0.00 0.00							



10-7-29

BE 10/08/05
04P10
15

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: 0205-634-041 PAR #: _____ Fault Category: Skid plates NCR: Yes No DQA: _____ Date: 100807
 Resolution: Accepted Disposition: use as is. QA: N/C Closed: _____ Date: 10/08/16

NCR: <u>60744</u>		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
<u>10/08/04</u>	<u>110.2</u>	<u>AFT HEIGHT IS 1.375</u> <u>DISTANCE FROM AFT END TO</u> <u>1ST HOLE IS 13.750</u> <u>R.C. Boreling</u>	<u>CP</u> <u>10.08.09</u> <u>Q51042</u>	<u>OK</u> <u>verify cut dims as much</u> <u>as possible prior to chopping.</u>	<u>[Signature]</u> <u>10-8-9</u>	<u>S</u> <u>10/08/09</u>	<u>CP</u> <u>10.08.09</u> <u>Q51042</u>	<u>[Signature]</u> <u>100809</u>

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QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

140

0.00



Skidtubes

Memo

0.00

Skidtubes

1-Weld step D2576 as per Dwg. D2580 and QSI 004

A/R□□□ Aluminum Rod

2-Prep per QSI 005 and weld crossbolt spacers D2579 as per Dwg. D2580, QSI 004.

For D2579 spacers, weld one side, pass 3/8" drill, weld other side, pass 3/8" drill

A/R□□□ Aluminum Rod

3-Grind welds as per Dwg D2580 Grind flush ridge made from bending

4-Drill holes for wearplates using DT 8217 & DT8937 Open holes to 19/64",
adjust stopper not to hit web. Debur5-Counterbore crossbolt spacers to 7/16" ID x 1.0" deep as per Dwg D2580.
Debur holes

6-Drill pilot holes for aft cap using DT 8215 Open holes to 0.208". Debur

7-Drill pilot holes for Tow ring using DT8091, open to .640" and Debur

BE 10/08/04

BE 10/08/04

10-8-9

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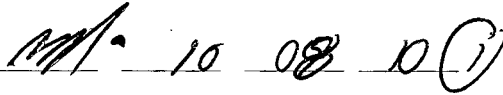
Run Start



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
150  QC Quality Control	QC10- Inspect visual per QSI004- ground welds Memo	0.00 0.00	8/10/08/09						
160  QC Quality Control	QC5- Inspect part completeness to step on W/O Memo	0.00 0.00	8/10/08/09						
170  HandFinish Hand Finishing	Pressure Wash per QSI005 4.3 Memo Re-alodine tube as per QSI 005 section 4.1.2.1 do not acid etch and leave fwd cap out of solution.	0.00 0.00							

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Run Start



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
180 Powdercoat Powder Coating	White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum Memo START TIME: 9:30AM OVEN TEMPERATURE: 320°F FINISH TIME: 10:00AM	0.00 0.00	=) M	W108/11		1	0		
190 QC Quality Control	QC3- Inspect Part Finish Memo	0.00 0.00							

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Run Start



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

200

0.00



HandFinish

Hand Finishing

Memo

0.00

=> M 10/08/12

XL

φ

1-Install inserts & wearplates & Gaskets as per Dwg. D2580. Use a drop of

Sikaflex on insert holes before installing wearplates

A/R ☐ ☐ Sikaflex-291 ☐ M115104

Sikaflex expire date: 11/01

2-Coat D2594-3 O' rings with Petroleum Jelly and install on D2594-1 plugs as per Dwg D2580

3-Inspect for foreign object per QSI 024

4-Install 2855 Aft Cap as per Dwg D2580 and seal Fwd Step & Aft Cap with

Sikaflex. Clean excess adhesive

A/R ☐ ☐ Sikaflex-291 ☐ M115104

Sikaflex expire date: 11/01

5-Wing Walk as per Dwg D2580 and QSI 005 4.4

Batch: M115028

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Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
210 	QC5- Inspect part completeness to step on W/O	0.00							
QC Quality Control	Memo Inspect Aft Cap, Fwd Step and Wing Walk of work to Current Step Inspect for Foreign objects per QSI 024	0.00							
220 	Packaging	0.00							
Packaging Packaging	Memo Identify and pack for shipping as per PPPD205-634-041 Location: <u>73</u> PPP Rev: <u>I</u>	0.00							
230 	QC21- Final Inspection - Work Order Release	0.00							
QC Quality Control	Memo	0.00							

Solos12

@

10/28/1389

10/08/16 J.

MF
10-8-13

W/O:		WORK ORDER CHANGES					
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Picklist Print

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Parent Item: D205-634-041

Parent Item Name: Replacement Skidtube

Start Date: 7/21/2010


Required Date: 8/6/2010

Start Qty: 1.00

Required Qty: 1.00


Comments: IPP Rev:N02.08.28FP was QC5 in Step 27; Added QC5 to Step 30KJ
 IPP Rev P 10.02.19 per PAR09-043 EC verified by:DD
 IPP Rev. O 06.02.28 Added paperwork EC
 IPP Rev:P 07-07-09 SS Wearplates & Gaskets JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

D2580-1		Manufactured	No			110	Each	6.0000	1	1			
													
205 Skidtube bent detail													


Location	Loc Qty	Loc Code
----------	---------	----------

LG	4	
57028	1	
59297	1	
60379	2	
ST046	2	
59913	2	

D2576-3		Manufactured	No			140	Each	90.0000	1	1			
													
Step (maching detail)													

Location	Loc Qty	Loc Code
----------	---------	----------

LG	90	
46661	42	
52215	48	

D2570		Manufactured	No			140	Each	313.0000	20	20			
													
Crossbolt Spacer													

Location	Loc Qty	Loc Code
----------	---------	----------

LG	313	
57052	5	
57348	4	
58433	14	
59113	290	

B-59913 MB 10-07-28

BE 10/02/04

20 BE 10/02/04

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Parent Item: D205-634-041

Parent Item Name: Replacement Skidtube

Start Date: 7/21/2010

Required Date: 8/6/2010

Start Qty: 1.00

Required Qty: 1.00

D2855

Manufactured No

200

Each

83.0000

1

1



Cap



Location

Loc Qty

Loc Code

FP6

1

56613

1

ST026

82

50513

1

50770

28

51539

2

53791

51

x1

10/08/12

AN3-5A

Purchased No

200

Each

1,128.000

2

2



Bolt



Location

Loc Qty

Loc Code

ST350

1128

105057

628

115016

500

x2

10/08/12

AN960JD10L

NAS1149D0332J Purchased

No

200

Each

3,021.000

2

2



Washer



Location

Loc Qty

Loc Code

ST348

3021

10985

3021

x2

10/08/12

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Parent Item Name: Replacement Skidtube

Start Date: 7/21/2010

Required Date: 8/6/2010

Start Qty: 1.00

Required Qty: 1.00

ALS7-1032-130

Purchased

No

200

Each

950.0000

50

50



Insert

Location

Loc Qty

Loc Code

FP

933

M114723

x50 M 10/08/12

115079

933

ST282

17

113238

17

AN3C4A

Purchased

No

200

Each

1,520.000

50

50



BOLT

Location

Loc Qty

Loc Code

ST350

1520

114103

501

114108

14

114416

12

114523

2

114941

991

x50 M 10/08/12

AN960C10L

NAS1149C0332
R

Purchased

No

200

Each

0.0000

50

50



washer

D3566-13

Manufactured

No

200

Each

35.0000

1

1



Gasket

Location

Loc Qty

Loc Code

FP

4

53461

4

x1 M 10/08/12

FP012

31

59661

23

60209

8

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Start Date: 7/21/2010

Required Date: 8/6/2010

Start Qty: 1.00

Required Qty: 1.00

D3566-5
Gasket
Manufactured No 200 Each 16.0000 1 1

Location Loc Qty Loc Code

FP015 16

59158 16

200 Each 21.0000 2

x1 M 10/08/12
2

D3566-1
Gasket
Manufactured No 200 Each 21.0000 2

Location Loc Qty Loc Code

FP015 21

57715 2

59126 * ? 7

60202 12

200 Each 10.0000 1

x2 M 10/08/12

D3564-11
Wearshoe
Manufactured No 200 Each 10.0000 1

Location Loc Qty Loc Code

FP019 10

59941 10

200 Each 19.0000 1

x1 M 10/08/12

D3564-13
Wearshoe
Manufactured No 200 Each 19.0000 1

Location Loc Qty Loc Code

FP17 19

59660 19

x1 M 10/08/12

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Start Date: 7/21/2010

Required Date: 8/6/2010

Start Qty: 1.00

Required Qty: 1.00

D3564-9

Manufactured No

200 Each

13.0000

1

1



Wearshoe



Location

Loc Qty

Loc Code

FP

1

55334

1

FP019

12

59201

12

D3564-5

Manufactured No

200 Each

16.0000

1

1



Wearshoe



Location

Loc Qty

Loc Code

FG

1

34806

1

FP19

4

57525

1

58709

3

FP-19

11

59157

11

D2594-3

Manufactured No

200 Each

443.0000

16

16



O-Ring, 205 Skidtube



Location

Loc Qty

Loc Code

FP

443

55546

19

58191

12

59358

412

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Required Date: 8/6/2010

Start Qty: 1.00

Required Qty: 1.00

D2594-1

Manufactured No

200

Each

451.0000

16

16



Plug, 205 Skidtube

Location

Loc Qty

Loc Code

FP

183

42807

112

55002

71

FP14

268

58434

79

59110

189

16 10/08/12

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DART

DESIGN #	DRAWN BY RH	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED #	APPROVED #	DRAWING NO. D2580	REV. & D SHEET 1 OF 3
DATE 07.02.27		TITLE 205 SKIDTUBE ASSEMBLY	SCALE NTS
A	96.09.16	NEW ISSUE	
B	96.12.02	AS MANUFACTURED	
C	98.08.26	REDRAWN, INCLUDED DEO 9094/9097	
D	07.02.27	CHANGE TO SS WEARPLATES AND GASKETS, INCLUDE DEO 9124/9183	

RELEASED
07-06-28 #

QTY -041	QTY -045	Part Number	Description
X		D2580-041	SKIDTUBE ASSEMBLY
	X	D2580-045	SKIDTUBE ASSEMBLY
1	1	D2500-1-190	EXTRUSION
1	1	D2576-3	STEP
20	24	D2579	CROSS BOLT SPACER
16	16	D2594-1	PLUG
16	16	D2594-3	O-RING
1	1	D2596	205 WEB
1	1	D2855	AFT CAP
1	1	D3564-5	WEARSHOE
1	1	D3564-9	WEARSHOE
1	1	D3564-11	WEARSHOE
1	1	D3564-13	WEARSHOE
2	2	D3566-1	GASKET
1	1	D3566-5	GASKET
1	1	D3566-13	GASKET
50	50	ALS7-1032-130 or AKS7-1032-130 or AKS4-1032-130 or AELS-1032-130	INSERT
50	50	AN3C4A	BOLT
2	2	AN3-5A	BOLT
50	50	AN960C10L	WASHER
2	2	AN960JD10L	WASHER

GENERAL NOTES:

- 1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 2) ALL DIMENSIONS ARE IN INCHES
- 3) INSERT D2596 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241 ADHESIVE PER DART QSI 015 BEFORE BENDING. ENSURE HOLES LINE-UP.
- 4) BEND AS A SMOOTH RADIUS STARTING WITH A MAXIMUM CENTERLINE RADIUS OF 60 AND ENDING WITH A MINIMUM RADIUS OF 30. A MAXIMUM REDUCTION OF 0.200 IN DIAMETER IS ALLOWABLE IN THE BENT PORTION OF THE TUBE.
- 5) USE DART DRILL TEMPLATE TD2577-205 TO LOCATE AND DRILL Ø0.297 HOLES FOR WEARSHOE INSERTS. INSTALL ALS7-1032-130 PER SECTION D-D (50 PLACES) AFTER FINISH. INSTALL AN3C4A BOLTS AND AN960C10L WASHERS WITH SIKAFLEX-241/-291.
- 6) WELDING TO BE DONE PER DART QSI 004.
- 7) FINISH:
SEE NOTES ON
PAGE 2 FOR D2580-041 AND
PAGE 3 FOR D2580-045
- 8) INSERT D2594-1 PLUG C/W D2594-3 O-RING IN HOLES MARKED 'P' (BOTH SIDES OF TUBE) AFTER FINISH (16 PLACES).

NO. 10274-10-1-21
WORK ORDER
WITHOUT NOTICE
SUBJECT TO AMENDMENT
UNCONTROLLED COPY
ENGINEERING
RETURN TO
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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

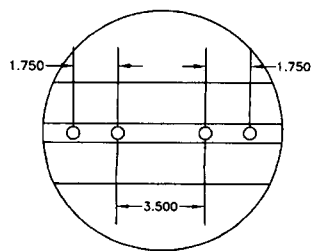
Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

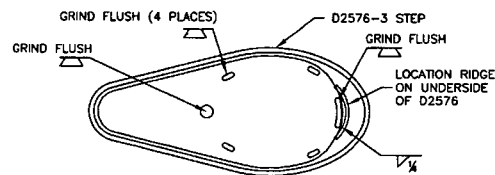
NOTE: Date & initial all entries

w/o 60744

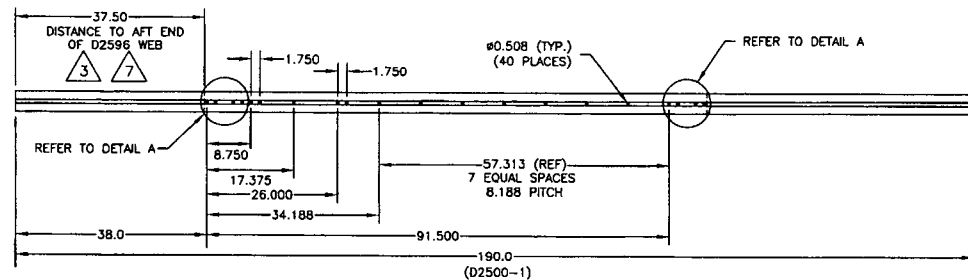
DETAIL A
SCALE 5:24



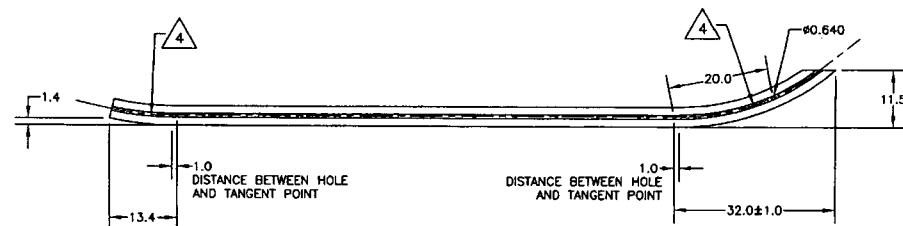
DETAIL B
SCALE 5:24



D2580-1 DRILLING DETAIL

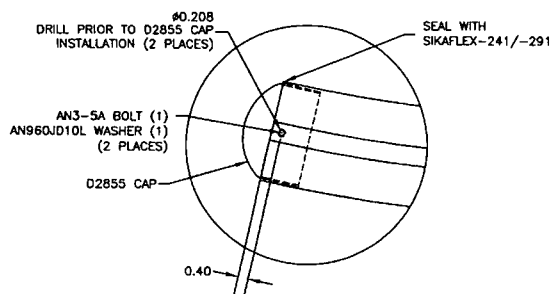


D2580-1 BENDING AND CUTTING DETAIL

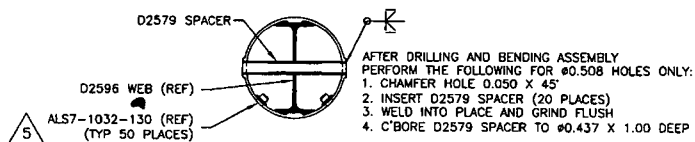


RELEASED
07 Dec 88

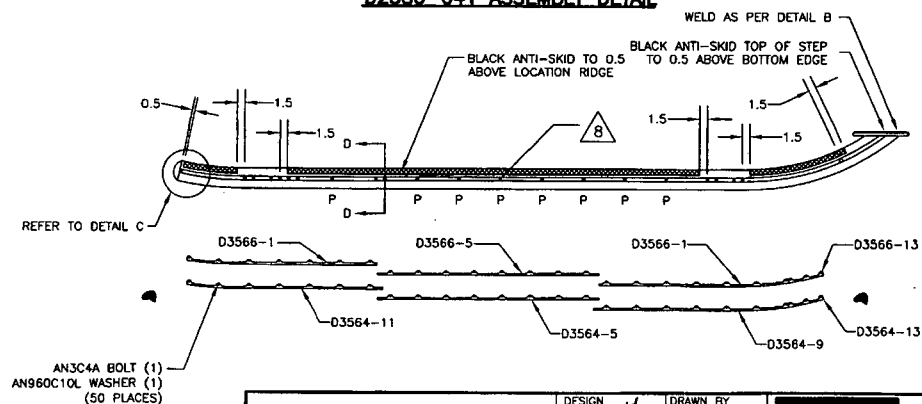
DETAIL C
SCALE 5:24



SECTION D-D
SCALE 5:24



D2580-041 ASSEMBLY DETAIL



D2580-041 NOTES

- i) FINISH: ACID ETCH, ALODINE PER DART QSI 005 4.1 PRIOR TO INSERTING D2596 WEB POWDER COAT ASSEMBLY GLOSS WHITE (REF. 4.3.5.1) PER DART QSI 005 4.3 BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4.4

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DESIGN	DRAWN BY	DART	DART AEROSPACE LTD.
CHECKED	APPROVED	DRAWING NO.	WARRICKSBURY, ONTARIO, CANADA
DATE		D2580	REV. D
07.02.27		TITLE	SHEET 2 OF 3
		205 SKIDTUBE ASSEMBLY	SCALE
			1:24

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

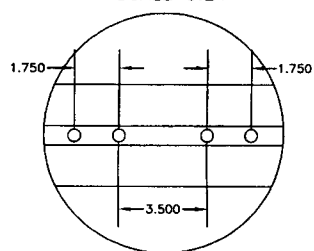
Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

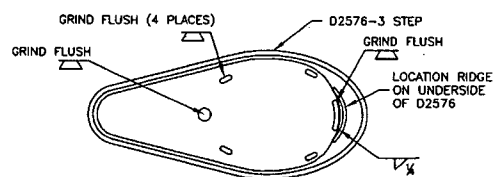
NOTE: Date & initial all entries

u/b 60744

DETAIL E
SCALE 5:24

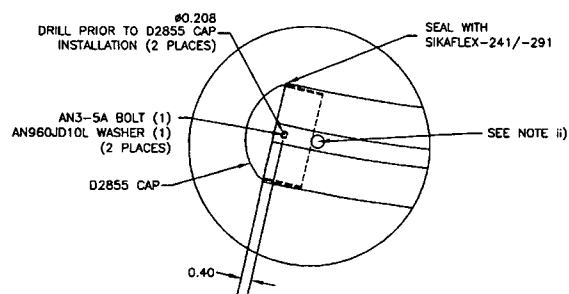


DETAIL F
SCALE 5:24

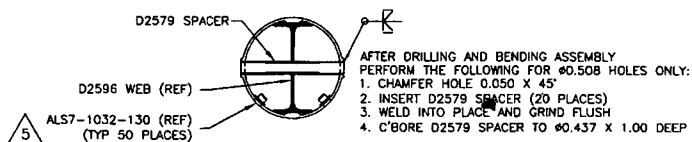


RELEASED
07.06.18

DETAIL G
SCALE 5:24



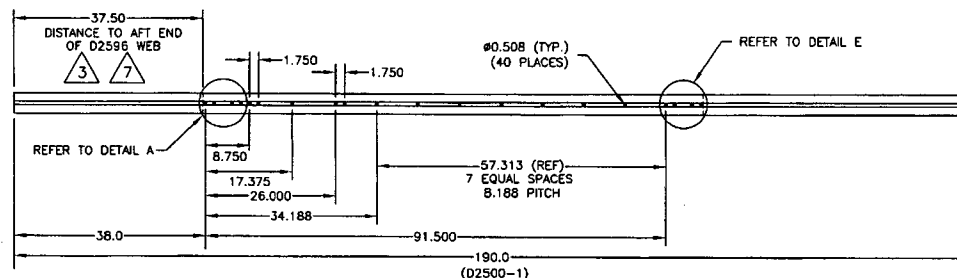
SECTION H-H
SCALE 5:24



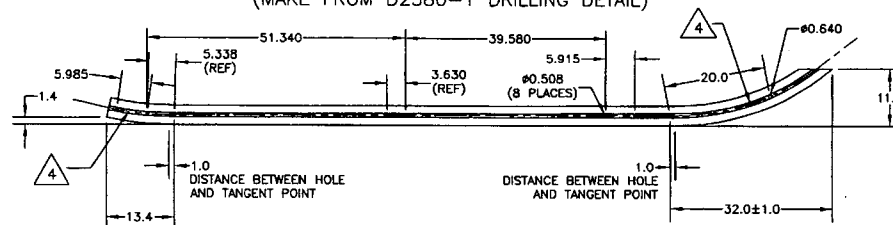
D2580-045 NOTES

- i) FINISH: ACID ETCH, ALODINE PER DART QSI 005 4.1 PRIOR TO INSERTING D2596 WEB POWDER COAT ENTIRE ASSEMBLY GREEN (REF. 4.3.5.8) PER DART QSI 005 4.3 BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4.4
- ii) IT IS ACCEPTABLE TO GRIND A RELIEF IN THE D2855 AFT CAP TO PREVENT INTERFERENCE WITH THE SPACER AT THIS LOCATION

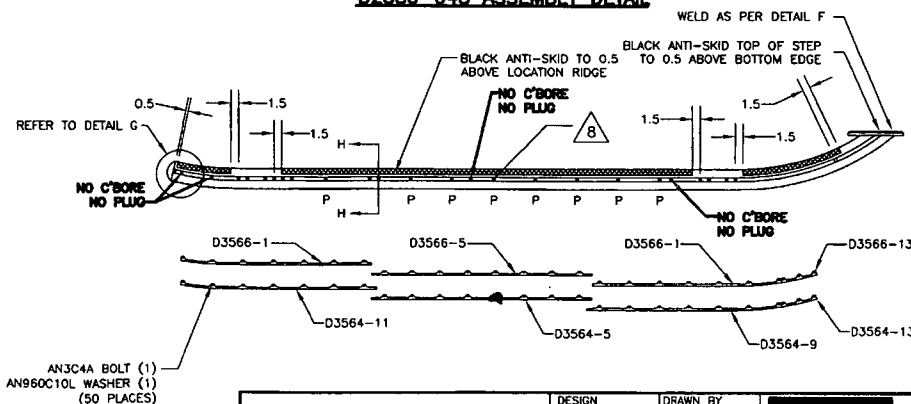
D2580-1 DRILLING DETAIL



D2580-5 BENDING AND CUTTING DETAIL
(MAKE FROM D2580-1 DRILLING DETAIL)



D2580-045 ASSEMBLY DETAIL



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DESIGN RH	DRAWN BY RH	DART	DART AEROSPACE LTD. BARKESBURY, ONTARIO, CANADA
CHECKED H	APPROVED H	DRAWING NO. D2580	REV. 0 SHEET 3 OF 3
DATE 07.02.27	TITLE 205 SKIDTUBE ASSEMBLY	SCALE 1:24	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

NO. 232

AWS D17.1.2001
QUALIFICATION TEST RECORD

Name: Bailey Elliott
Job number: 59105
Part number: D205-634-041
Description: 205 skid tube
Welding Process: Tig[☒] Mig[]
Base material: Aluminium
Current: AC[☒] DC[]

TEST REQUIREMENTS AND RESULTS

Visual: pass[☒] fail[]
Penetration: pass[☒] fail[]

UNACCEPTABLE

Cracks: pass[☒] fail[]
Undercut: pass[☒] fail[]
Pin holes: pass[☒] fail[]
Overlap (cold lap): pass[☒] fail[]
Porosity (surface): pass[☒] fail[]
Coloration: pass[☒] fail[]

Qualifier Pat. Dunn Date of Test Coupon 10.06.01
Welder Bailey Elliott Date of Test Coupon 10.06.01

The above named individual is qualified in accordance with AWS D17.1.2001 to weld